"The Whole Thing"

PRIVATE PAPER

EARLY DRAFT

NOT FOR PUBLICATION

Ten copies have been made of this paper to show to particular people, for two purposes: first, to explain a scope of organized interests which I have been unable to present to anyone orally or in piecemeal writings, and second, in hope of criticism and suggestions that will take into account the relationship of particular problems to the general picture. These papers [illegible] philosophical [illegible] However, I think it will [illegible] that they [illegible]

I am acutely aware that this is only a sketch, an unrefined outline for study and research.

There are many topics in mathematics, logic and [illegible] and systems analysis [illegible] which will [illegible] have to be [illegible] in if [illegible] is to be clarified.

study and research. I hope it can be seen from the drift of the whole thing, however, why I have proceeded in this way, attempting certain general formulations before narrowing to specifics. I hope it will not be inferred from the present form that I have any intention of publishing it soon or as it stands. I have sought, rather, to unite several trends of my interests in a clear way as a federation of [illegible] papers that [illegible] but not [illegible] [illegible]

I intend this as a way of resting these general concerns for awhile in the clearest form I can manage.

A

In a number of ways this manuscript gives me more embarrassment than pride. It is in many [illegible] vague and [illegible] [illegible] [illegible] [illegible] sort of travesty on [illegible] But as some readers will know, these topics have been obsessive with me for some years, in such a way as to restrict [illegible] [illegible] hinder my other obligations and [illegible] many misunderstandings. Thus I am [illegible] to [illegible] in a way that [illegible] [illegible] as clearly as I possibly can [illegible]

I regret that in previous papers my choice of language has been a problem for readers-- on the one hand for being too colorful, on the other for containing "jargon." I have tried to avoid both practices here.

B

I have striven to make the prose as lifeless as possible and favor clear [illegible] instead — with the exception of the chapters on decision problems and human caring in the future, in which I [illegible] [illegible] feelings apparent.

It has been especially difficult to avoid using special terms, either words of my own or technical terms from different fields. I hope the reader will bear with me to the extent I have not been able to avoid this.

Ω SKX: INTRO

"The Whole Thing."

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Ten copies have been made of this paper ~~has been duplicated~~ ~~for~~ to ~~showing~~ to particular people for two purposes: first, to explain ~~[illegible]~~ ~~a scope of~~ a scope of organized interests which I have been unable to present to anyone orally ~~[illegible]~~ or in piecemeal writings, and second, ~~[illegible]~~ in hope ~~[illegible]~~ of criticism and suggestion ~~that [illegible]~~ that [illegible] criticism of plain people to good purpose.

It will not be inferred from
~~I~~ ~~HOPE THE PRESENT FORM~~
of this ~~[illegible] will not be~~
~~[illegible] that I think it~~
material that I have any intention of publishing it soon or as it stands. I have sought, rather, to unite several threads of my interests in a clear way for an assessment of what (?)

HOPE IT'LL BE CLEAR
this is committedly empirical.

I intend this as a way of resting these general concerns for ~~[illegible]~~ awhile in the clearest form I can manage.

JARGON VS IDEAS

Sorry that in previous papers in this series this has seemed a conform. For various reasons a lot of tech. terms are thrown in from various fields. This is only because they are examples; they aren't used precisely.

I WILL TRY TO IDENTIFY TECH. LG. WHICH IS NOT MY OWN.

Directly philosophical with an empirical component.

A Federation of interests

... for those well-wishers

It may be that in a descriptive network certain"pure types" are taken for their ease of statement, and other types are allowed as modifications of these pure types. The most obvious example is "rationality" in social sciences. Amxmmb "Rationality" is often used as a paradigmatic concept-- as by the classical economists, Weber, Parsons, and the game theorists-- to describe m the pure version of what people would do if they had certain excellent abilities of calculation and considerable freedom of movement in various situations. Thwmw Then, within their theories, a large part of the difference between "rational" behavior and what people actually do can be attributed to irrational and non-rational factors, such as m emotion, inertia, xm and inflexibility.

It may often be found that the measuring schematic which was originally set in a network of clear outside predications-- for instance, a scale which has been developed in reference to some particular group of objects-- loses this clarity of outside predication when xxmmx applied to a new universe of objects-- new objects x may be in some sense "off the scale," either by going off an <u>end</u> of the scale to a realm in which the old outside predications are no longer relevant-- x simple examplesix are the thmmmmmmmmmmmmmmmmmm physical laws relating km the expansion of metals or the contraction of gases to temperature;- or be in some new way unrelated to the old meanings of the scale, xxxmhmm -- for example,mhmm when aero-cars come into use, the old motorcar registrations that count "number of wheels" as a criterion of XXXXXXXXtaxing will be inappropriate to the new vehicles which do not even touch the ground, let alone ride on wheels.

A descr ptive array can be o many kinds. We may enumerate the possible types, roughly, as being <u>dimensions</u>, <u>discrete entities</u>, and <u>weightings</u>. owever, on examining/a the constituent parts of a descriptive/ networks, it may not e clear which kind such a schematic may be. For instance, the term "unconscious" in a system of depth psychology-- is it a dimension, or a discrete half of a dimension, or a discrete entity? It will depend on the system, and in fact the way the system evolves as many psychoanalysts use it may change it from one of these to another.

There are a number of different kinds of weightings./ They vary in precision and extent of implication. We may distinguish/such weightings as probability and measufement. For instance, some measures-- like "force" and "mass" in physics-- exist in a crystallized network of schematic connections with a number of precise implications. Thus a measure of something's mass also implies, within this very well validated descriptive network, a mea ure of the force that would be necessary to push it, if there were no riction.

The term "probability" is interestingly complicated. What measures of probability may be made in different situations vary with the context; it is quite impossible to talk about the probability of a theory's being true in the same way that one refers to the precisely calculated probabilities of an eventuality on a well-made roulette wheel.

<u>Measuring networks</u> are our next topic. We asserted in the first chapter that the significance/and precision of a descriptive network was dependent on there being multiple outside predications to lend clarity to the terms involved.

It is the same for measuring/schematics and networks. By a measuring /schematic we mean some array or dimension that is used to give some schematic evaluating of a thing from a number of different alternatives-- instance, a weighting or a scale. But just as with the coincidence of p ates

Let us emphasize that all these problems are empirical, related directly to particular problems, existing theories, tools of research and possible new directions of study. What things can be made precise--definition of terms, operational definitions of terms, control, are entirely local matters within each subject. In many cases it will be possible to have micro-level understanding without prediction, where unobservables or chance factors precipitate the overall result; in some cases it may be possible to have gross-level predictions without a corresponding understanding on the micro-level, as with the rank-size rule of urban population.

In this chapter we will offer what we think is a preferable alternative to the axiomatic programme of scientific investigation. We will treat induction and theory validation as a cyclical process, which takes place by empirical checking and schematic changes in the model.

As will be recalled, we have introduced the concept of "induction" as the problem of finding stable schematics in some collection of phenomena, containing many manifest properties and relations, internal and external. The stable schematics, we hope, will derive precision and significance from outside predications which stabilize and make precise their meaning. Eventually, it is hoped, these networks will reach a high state of specification and crystallization with regard to as many other theory-systems as possible.

We will divide the problem into a number of stages.

First, the problem of noticing and assimilating. In its preliminary stages this is a matter of noticing that there is a domain, and noticing possible ways of segmenting and otherwise schematizing the domain. These are hunches, problems of "notion schematics" as discussed earlier, and only of passing interest to us here.

The later stages of noticing and assimilating demand finding categories, dimensions, entities and general "codings" which seem to take into account the significant phenomena to be described. In this it is necessary to throw into relief those things, distinctions, etc. which seem to be significant, searching for cutting-points, category-boundaries and so on. The visibility of what seems significant must be increased; attention on the apparently significant parts of the material must be maintained.

Several crucial problems at this stage must be mentioned.

K One of these is the continued noticing and assimilating of features of the phenomena which do not fit into the code, in such a way that they may be later re-considered for possible modifications of the model. Unfortunately several considerations militate against this. One is purely economic, the allocation of available labor and facilities for gathering data that seems irrelevant-- scarcely a "reasonable" activity, in light of the first construal, and yet obviously reasonable in the long run.

K > Another is the problem of the forced applicability of a code. Like any other language or schematic, a coding-language may be applied where its appropriacy is more attenuated than the user realizes. Thus categories chosen for

coding may come subtly to take on new meanings which were initially expected, not or come to have phenomenal connotations which result in the gathering of data not slanted toward the original plan of research. The converse is also true: the intent to notice things outside of the focal research concerns may be frustrated by the drift of the code back toward the focal categories.

T. M.

L Basically the effort to collect side materials, not apparently of direct relevance, is a matter ofthe actual configurations of the subject-matter. For in some cases this material will be expensive and unrelated to the first activity, in others virtually identical and concomitant.

M ~~A very conspicu~~ Unfortunately the case of some coding may take on the characteristics of a stuck pattern — a crystallized forced application [illegible]

N ~~Which~~ which makes it much harder to see the features and distinctions that ought to be noticed for improvement of the model. A very conspicuous and clear code will assimilate counterexamples to itself.

→ N These problems of noticing may be regarded as one aspect of the problem of <u>computability</u>, or assimilation. What data may be successfully examined by the builder of the theory have clear import for the generality, clarity and suitable emphasis of the theory that results. If there is an overload, above the capacity of the [illegible] the information ~~[illegible]~~ processing and retrieval, theoretical construction and [illegible] procedures.

The problem of the evolving theory is that which confronts any evolving thought-system. A thought -system, as we remember, is some network of schematic connections which can evolve, by and large, only by discrete schematic changes. While "leaps" are possible, they are not easy, and depend largely on the kinds of information that have entered through the noticing-system.

If I put it in, NB lack of derivational direction of t-s.

FEEDBACK AND CYCLE TO STAGE 1.

We come now to the crux of the foregoing arguments about procedure. That is the fifth step, theory improvement and correction.

It is stated as self-evident by the axiomatic theorists that an axiomatic model can be corrected and improved in a simple fashion, by ascertaining <u>which</u> of the fundamental propositions are false and need replacement. This fails to recognize the things that can have gone wrong throughout the referential network, and assumes that in the canonical form which the theory has happened to assume the difficulties may be localized to one or a few axioms.

That this is not so should be clear from reviewing the different steps through which the theory has gone in its development. Certain things were noticed; an attempt was made to array them, code them and construct a model. Natural categories and divisions may have been missed; schematics of division and array may have been applied outside their domain of applicability; in crystallizing his model the theorist may have arbitrarily overruled unclarities in his own mind; in reduction to axioms, axiom-sets may have been chosen which divided the mistakes among several different schematics; in testing, the operational definitions may have been unsuitable.

The improvement of the theory, then, must proceed through all means which seem reasonable and appropriate to the subject-matter; that is, the theorist should not fail to consider any schematic changes in his model which will increase its apparent probability of better fit. To expect that the axiomatic method will localize the incorrectness of a theory is very much like handing a man a map of Boston torn in three pieces and expecting that he can make it into a map of New York.

The problem of ~~life~~ human life and death is ~~only~~ one of the frontiers on which the [spatial] categories are degenerating. ~~(Abortion, in~~

POSSIBLE APPEARANCE OF DOCTRINES & STABLE IDEA-SYSTEMS

The availability of plausible doctrines

PRIVATE REACTIONS

DEFENSES
ISOLATIONS
WITHDRAWALS
SENSE OF FUTILITY

JOINT INDIVL - GRP REAX

Can activity take you over?
Sense of purpose
Sense of rectitude (grp w'drawal) difficulties
Sense of implausibility, w/ bizarreness, 'absurdity' / 'comedical'

1. MORAL CLIMATE

Another example is, of course, the thermonuclear bomb. Its abiding presence in the moral climate today-- particularly for the young-- has been discussed sufficiently elsewhere.

Ch.

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XII Deeper carings of attention foci

UNEASINESS

SENSE OF COHERENCE

HOPE

REASONABLE TRANSITIONS
OF LIFE-STAGES

THE DELICACIES OF BALANCE
and 'integration' of system

ROLED PARTICIPATION?

THE TRULY TRUE BASICITY
of the standing in the [illegible] [illegible]

Ch. 1

93

VI

NEED FOR BELIEFS

Immortality of world

makes many ~~[illegible]~~ [illegible]

it for [illegible] & [illegible]

to the creatures

a.

92

V. Greater wholes & availabilities

GEIST
SHUT

How things available
fit in with the people

Ch

ACTH - ISX
1

91

IV Individual among others. ACTh - ISX

SIGNALLING & FATE CONTROL

Sex, love

Parsonian interchange paradigm

BUT DO THINGS WORK OUT ~~like~~ he says?
FAR TOO MANY COMPLICATIONS

the learning of ACTS
[illegible] outburst
Inscrutability
Ignoring

Ch

88

II. Individual & Situation

(IPR); Systems for Living

Poor programmings & reactive structure (SITUATIONAL)

UNDERSTANDING SITUATION etc.

COMPUTING & DECISION PROBLEMS

HUNCHES

ANXIETIES

BEING WITH THINGS

Ch.

85

I. The Spectrum
[illegible]

[illegible] INDIVIDUAL

REACTIVE STRUCTURE

[illegible] & [illegible]

ART [illegible] CAN [illegible]
SAME [illegible]
∴ [illegible] unless
[illegible]

Abilities to [illegible]

WHAT LIMITATIONS EXIST

FOCUS INTERESTS & CARING

[illegible] (EMPIRICAL)

[illegible] PARTS
([illegible])
(EMPIRICAL)

[illegible] REACTIVE PARTS, [illegible]
v. INTEGRATION - [illegible], [illegible]

[illegible]

BK
II
84

CDHS

The Caring & Daring
of the Human Soul.

If it seems at first that it would never be reasonable, suppose that

technology comes into existence whereby

"brain-programming" actually had reached a high state of the art,

whole personalities and memory-sets could be stored for

loading and re-loading a human mechanism? What about the actual repair

of brain damage, the connection of machinery to the nervous system?

Behind and besides the philosophical questions, there are the more

drastic questions of both cost and allocation. If these developments in neurology and programming should follow the trends we have mentioned in medical sciences, the costs will be enormous and within the reach only of public authority. To whom will these personality-restorations be allocated, and in what situations? Of course, breakthroughs in computer technology-- say, biotic digital computers requiring infinitesimal power and space-- might make the existence possible of warehouses of imp bottles, filled with regenerations of the minds of people dead and living elsewhere.

The purpose or possible uses of it are unclear. Yet, as with the mass-production of the prayer wheel, the use of computers to write out the manifold names of God, and the banning of contraceptive devices on the basis of views dealing with the production of consciousness, there are institutions and persons that might favor the production of artificial or simulated consciousness to the limit of capacity,

We must emphasize again the incredible importance of the distribution of decision, if these issues themselves are of any importance. There have been many times and situations when important decisions were made in the clear sight of an approving public-- peace or war, the National Recovery Act. The changes of the kinds of things that are happening and available make that less and less a likely model of what will happen with decisions involving both technicalities and humanity.

We would like to emphasize the interlockingness of systems decisions in times to come. A great many steps will become necessary to counteract such things as the increase of carbon dioxide, the silting of lakes, the ends of species, the dissemination of unstable bacteria, water pollution, soil erosion and contamination. Yet numbers of these problems are closely interrelated in the implications that system decisions will have among them. Similarly for city planning and transportation, government subsidy of industry, and market structure.

Yet we are all too aware of the ease of delay in system decisions in degenerating situations. For example, England kept putting off the adoption of right-hand drive; had it been adopted early a great many costs could have been saved, but the rising cost at each time the change was considered always prevented it. Similarly in this country for developmental work on the monorail, with constant deferral to the existing emphasis on automobiles, in an ascending spiral of possible costs.

With the increase of the extent of interlock among systems, and the

This increase of interlock carries with it certain temptations, for instance the design of systems that can be put to unexpected private use.

Other new generalities of systems unite things that had been disparate-- for example, "data," now widely interchangeable from system to system and machine to machine, and soon the storage of photographs. But along with these generalities we may also expect the corruption of a number of universals-- accounting systems, dimensions of measurements-- on which we formerly arrayed these things.

The ease of transformation by private mechanical means may well make less unified the systems of array and ordering presented to people without the equipment. Daylight saving time is one such transformation, though a benign one.

We may well expect that, as with the different speeds of phonograph records and the different types of radio receiver, more and more things will be unavailable to people without the proper equipment.

69,1

Technology has also made possible certain kinds of drastic new distinguishabilities-in-proximity. It is no longer necessary to be prepared and keyed-up to commit action A to suddenly do it-- for instance, war. Garbage can be wrapped in polythelene near lovely things; messages, files, etc., can be sharply segregated in ways that permit complete inattention to them-- things which are nearby but do not seem to be.

GENERALITY & OPTION

NEW & DIFFERENT RANGES OF POSSIBLE ALTERNATIVES

In many ways the problems of decision and system today stem from a generality and option - new and different ranges of possible alternatives have been made possible.

The unity and generality of problems prevent divisions into single problems or the assignments of special competence by area. In modern strategy there can be no simple distinction between war and peace; thermonuclear threat and arms-control negotiations are indivisibly tools in the same game.

Not only with weapons systems, but with all forms of facilities, a generalization of abilities has come about that permits a tremendously wide option in their use. While strategic considerations greatly restrict the possible use of these weapons systems, they are like other facilities subject to the widest possible consideration of vast ranges of alternatives.

GENERALITY

~~We have meant to emphasize above the generality of~~ new systems. ~~Many other new systems, less limited by strategic considerations,~~ ~~These new systems~~ These new systems are ~~Because of their generality, they are also~~ highly subject to options, or, in a loose sense, "arbitrary." What things are done with existing facilities is vastly more modifiable than ever before.

Foods and meat packing are an example. At an earlier time, what things were possible were contingent on natural forms. There were standard cuts of beef and pork, and, as residual categories, hamburger and sausage; there were the known fruits ~~vegetables~~ and grains etc. ~~and potatoes.~~ Now, by contrast, much of what is consumed are some sort of uniform mash, made to a consistency and shape that will be appealing. Baloney and "sliced cheese" are mainly milk solids obtained in a centrifuge; "fish sticks" and "chopettes" are artificially formed of formerly unusable fragments. "Fruit drinks" are fabricated, to suit the market, from both natural and artificial ingredients. The candy bar, with its layers and fractions of chocolates, syrups and crunchy elements, is an extreme case of total fabrication. The impending advent of prepared cellulose for bulking is another such development. And, symbolically, we see the vast success of the foodless food, Metrecal, totally constituted of basic oils, sugars and residues. However, Metrecal is merely the most explicit development along these lines, and by no means the first.

ECONOMIC PROBLEM
e.g. foodless & constructed foods

There are constraints on what things to make & do that vastly narrow option — at least commercially